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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/671,013	YAMAGUCHI, TETSUHARU	
	Examiner	Art Unit	
	Peter L. Cheng	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/25/2003, 4/5/2006, 1/10/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: COLOR IMAGE SCANNING AND PRINTING DEVICE *WITH EFFICIENT CONVERSION OF SCANNED IMAGE DATA INTO PRINT IMAGE DATA*, or similar wording.

2. The disclosure is objected to because of the following informalities:

- There are some typographical and grammatical errors in the disclosure; for example, **page 4, paragraph 9, line 7 (**"for the two pages"**); page 11, paragraph 32, line 2; page 11, paragraph 33, lines 1, 4, 6; page 11, paragraph 34, lines 1, 4 – 5, 7 (**suggest changing "shows to start" to "shows a starting point of", or similar wording**);**

- **Page 4, paragraph 9, lines 2 - 3:** for clarity, it is assumed that applicant intended to cite **in a first printing process** instead of **in the first printing process**;

Appropriate correction is required.

Claim Objections

3. Claim 2 is objected to because of the following informalities:

- **Line 7:** "**the preceding two color components**" lacks antecedent basis;

- **Lines 6 – 9:** regarding "**the conversion process for the preceding two color components of a first page by the conversion unit is completed before the scanning unit scans an image of a second page**", this portion of the claim does not appear to be supported by the specification;

  from **Fig. 2**, arrow **4** and specification **page 11, paragraph 33, lines 3 – 6**, the scan of the second pages occurs after Lab1 is written to memory **15**;

  from **Fig. 2,** arrow **5** and specification **page 11, paragraph 33, lines 6 – 8**, color conversion/binarization of K2 occurs after C1 is written to memory **17**;

  from **Fig. 2,** arrow **8** and specification **page 12, paragraph 34, lines 7 – 9**, the scanning of the ***third page*** begins when the color conversion/binarization of Y1 of the first page has completed;

therefore, it is assumed that applicant intended to cite, "**the conversion process for [[the]] a preceding two color components of a first page by the conversion unit is completed before the scanning unit scans an image of a [[second]] third page**";

4. Claim 17 is objected to because of the following informalities:

- **Lines 1 - 2:** "**the preceding color components**" lacks antecedent basis;

- **Lines 6 – 9:** regarding "**completing a conversion process for the preceding color components of a first page before scanning an image of a second page**", this portion of the claim does not appear to be supported by the specification;

from **Fig. 2**, arrow **4** and specification **page 11, paragraph 33, lines 3 – 6**, the scan of the second pages occurs after Lab1 is written to memory **15**;

from **Fig. 2,** arrow **5** and specification **page 11, paragraph 33, lines 6 – 8**, color conversion/binarization of K2 occurs after C1 is written to memory **17**;

from **Fig. 2,** arrow **8** and specification **page 12, paragraph 34, lines 7 – 9**, the scanning of the ***third page*** begins when the color conversion/binarization of Y1 of the first page has completed;

therefore, it is assumed that applicant intended to cite, "**completing a conversion process for [[the]] a preceding color components of a first page before scanning an image of a [[second]] third page**";

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 2, 5, 13, and 14 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **YAMADA [US Patent 5,839,039]**.

As for claim 1, YAMADA teaches a color image scanning and printing device comprising:

a scanning unit which scans an image of a plural number of pages

[As shown in **Fig. 2**, the "scanning unit" consists of an "original illuminating lamp 21, first mirror 11, second mirror 12, third mirror 13, imaging lens 14, CCD 15 having B, G and R filters"; **col. 3, lines 47 - 49];**

a conversion unit performing a conversion process by converting a scanned result scanned by the scanning unit into image data of each of a plurality of color components for printing one page as a unit

[As shown in **Fig. 1A**, YAMADA teaches a "conversion unit" that converts the scanned image data into an image signal which corresponds to a "developing color". The electrophotographic copying apparatus contains a "plurality of developing units 101M, 101C, 101Y, 101Bk" which respectively corresponds to the developing colors magenta, cyan, yellow and black; **col. 3, lines 42 – 43.** YAMADA cites, "CCD reader 200 converts the optical information of an original image into electrical signal, and amplifies it. An image signal is subjected to the

shading correction at 201, the correction for the color filter characteristics by input masking unit 202, the conversion of the light density by LOG conversion unit 203, and the correction for the toner density characteristics by output masking/UCR processor 204 to obtain an image signal V1 corresponding to a developing color"; **col. 5, lines 1 - 9];**

a printing unit which prints an image based on the converted image data of each of the color components

[As shown in **Fig. 2**, the electrophotographic copying apparatus contains a "printing unit" which consists of various components including a photosensitive drum, primary charger, surface potentiometer, a plurality of developing units, transfer drum, preliminary static eliminator, cleaner (**col. 3, lines 36 – 46**), laser scanning unit and mirrors (**col. 3, lines 58 - 60**), fixing device, paper feeder and transfer paper conveying systems (**col. 3, lines 62 - 64**)**];**

and a control unit

[Fig. 1A, CPU **212** "comprising a well-known timer circuit, an I/O circuit, and an interrupt circuit" (**col. 5, lines 34 - 36**) controls the conversion process steps **200 - 204]**

However, YAMADA does not specifically teach a "control unit"

which executes the conversion process by the conversion unit for a part of the color components of the scanned result of the image of the plural number of pages, prior to the conversion process by the conversion unit for remaining color components.

YAMADA does teach printing two sheets of paper at the same time and cites, "it is possible to retain two transfer papers such as transfer paper of A4 (210 mm long), B5 (182 mm long) or LTR (215.9 mm long) in size at the same time, as shown in FIG 14A. In such a case, if two transfer papers are assumed to be A paper and B paper, the copy speed is 9.55 sheets per minute by performing the formation for a full-color original copying image of four colors in a *sequence* of magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A) and black (B)"; **col. 4, lines 42 – 50.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to first convert scanned image data to magenta and then cyan for "paper A" and "paper B" and then to convert scanned image data to yellow and then black for "paper A" and "paper B" so that the transfer of the developing colors to the transfer drum could proceed efficiently (e.g., without "waiting" for data) according to the above-noted sequence (magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A), black (B)).

Regarding claim 2, YAMADA further teaches the color image scanning and printing device according to claim 1,

> **wherein the printing unit prints an image based on image data of two pages for each of the color components**
>
> **[**This is illustrated in **Fig. 14A** in which image data for "paper A" and "paper B" is transferred to the transfer drum in sequence - magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A), black (B)**],**

However, YAMADA does not specifically teach

> **and when the plurality of color components are four colors, a conversion process for two color components of the two pages is executed by the conversion unit prior to a conversion process for the remaining two color components of the two pages by the conversion unit,**

As noted for claim 1, YAMADA does teach printing two sheets of paper at the same time and cites, "it is possible to retain two transfer papers such as transfer paper of A4 (210 mm long), B5 (182 mm long) or LTR (215.9 mm long) in size at the same time, as shown in FIG 14A. In such a case, if two transfer papers are assumed to be A paper and B paper, the copy speed is 9.55 sheets per minute by performing the formation for a full-color original copying image of four colors in a *sequence* of magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A) and black (B)"; **col. 4, lines 42 – 50.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to first convert scanned image data to magenta and then cyan for "paper A" and "paper B" and then to convert scanned image data to yellow and then black for "paper A" and "paper B" so that the transfer of the developing colors to the transfer drum could proceed efficiently (without "waiting" for data) according to the above-noted sequence (magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A), black (B)).

In addition, YAMADA does not specifically teach

> **and the conversion process for [[the]] a preceding two color components of a first page by the conversion unit is completed before the scanning unit scans an image of a [[second]] third page.**

In the copying mode shown in **Fig. 14A** and for a copying apparatus with a minimal amount of memory for containing converted image data, it would have been obvious to one of ordinary skill in the art at the time the invention was made to start the scan of a third page (e.g., a "paper C") after the completion of a conversion process for a preceding two color components (e.g., yellow and black) of a first page (e.g., "paper A") since the scan-print cycle is "paced" by the conversion of scanned image data and transfer of the scanned image data to the transfer drum. Once transferred to the

transfer drum, the memory containing the first page data could be re-used by the third page.

Regarding claim 5, YAMADA *does not specifically teach* the color image scanning and printing device according to claim 1,

> **wherein the control unit executes software functions according to stored computer programs.**

However, YAMADA teaches a control unit shown in **Fig. 1A** as CPU **212** "comprising a well-known timer circuit, an I/O circuit, and an interrupt circuit" (**col. 5, lines 34 - 36**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a memory storage component (such as a ROM, read-only memory) to contain a software program to be executed by the conventional CPU control unit.

Regarding claim 6, YAMADA *does not specifically teach* the color image scanning and printing device according to claim 5,

> **further comprising a read only memory to store the computer programs.**

However, YAMADA teaches a control unit shown in **Fig. 1A** as CPU **212** "comprising a well-known timer circuit, an I/O circuit, and an interrupt circuit" (**col. 5, lines 34 - 36**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a memory storage component (such as a ROM, read-only memory) to contain a software program to be executed by the conventional CPU control unit.

Regarding claim 7, YAMADA further teaches the color image scanning and printing device according to claim 1,

wherein the scanning unit includes a charge coupled device

[Fig. 1A, "CCD" **200].**

Regarding claim 8, YAMADA further teaches the color image scanning and printing device according to claim 1,

wherein the printing unit is an electro-photographic typed printing device

[FIG. 2 shows a full-color electrophotographic copying apparatus; **col. 3, lines 36 - 37].**

Regarding claim 9, YAMADA further teaches the color image scanning and printing device according to claim 1,

wherein the printing unit includes a photosensitive drum

[Fig. 2 "photosensitive drum" **1].**

As for claim 13, YAMADA teaches a color image scanning and printing device comprising:

means for scanning an image of a plural number of pages

[As shown in **Fig. 2**, the "scanning unit" consists of an "original illuminating lamp 21, first mirror 11, second mirror 12, third mirror 13, imaging lens 14, CCD 15 having B, G and R filters"; **col. 3, lines 47 - 49];**

means for performing a conversion process by converting a scanned result scanned by the means for scanning into image data of each of a plurality of color components for printing one page as a unit

[As shown in **Fig. 1A**, YAMADA teaches a "conversion unit" that converts the scanned image data into an image signal which corresponds to a "developing color". The electrophotographic copying apparatus contains a "plurality of developing units 101M, 101C, 101Y, 101Bk" which respectively corresponds to the developing colors magenta, cyan, yellow and black; **col. 3, lines 42 – 43.** YAMADA cites, "CCD reader 200 converts the optical information of an original image into electrical signal, and amplifies it. An image signal is subjected to the shading correction at 201, the correction for the color filter characteristics by input masking unit 202, the conversion of the light density by LOG conversion unit 203, and the correction for the toner density characteristics by output masking/UCR processor 204 to obtain an image signal V1 corresponding to a developing color"; **col. 5, lines 1 - 9];**

means for printing an image based on the converted image data of each

of the color components

[As shown in **Fig. 2**, the electrophotographic copying apparatus contains a "printing unit" which consists of various components including a photosensitive drum, primary charger, surface potentiometer, a plurality of developing units, transfer drum, preliminary static eliminator, cleaner (**col. 3, lines 36 – 46**), laser scanning unit and mirrors (**col. 3, lines 58 - 60**), fixing device, paper feeder and transfer paper conveying systems (**col. 3, lines 62 - 64**)**];**

and means for executing the conversion process by the means for performing a conversion process

[Fig. 1A, CPU **212** "comprising a well-known timer circuit, an I/O circuit, and an interrupt circuit" (**col. 5, lines 34 - 36**) controls the conversion process steps **200 - 204]**

However, YAMADA does not specifically teach "means for executing the conversion process"

for a part of the color components of the scanned result of the image of the plural number of pages, prior to the conversion process by the means for performing a conversion for remaining color components.

YAMADA does teach printing two sheets of paper at the same time and cites, "it is possible to retain two transfer papers such as transfer paper of A4 (210 mm long), B5

(182 mm long) or LTR (215.9 mm long) in size at the same time, as shown in FIG 14A. In such a case, if two transfer papers are assumed to be A paper and B paper, the copy speed is 9.55 sheets per minute by performing the formation for a full-color original copying image of four colors in a *sequence* of magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A) and black (B)"; **col. 4, lines 42 – 50.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to first convert scanned image data to magenta and then cyan for "paper A" and "paper B" and then to convert scanned image data to yellow and then black for "paper A" and "paper B" so that the transfer of the developing colors to the transfer drum could proceed efficiently (e.g., without "waiting" for data) according to the above-noted sequence (magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A), black (B)).

As for claim 14, YAMADA teaches a color image scanning and printing method comprising:

scanning an image of a plural number of pages

[As shown in **Fig. 2**, the "scanning unit" consists of an "original illuminating lamp 21, first mirror 11, second mirror 12, third mirror 13, imaging lens 14, CCD 15 having B, G and R filters"; **col. 3, lines 47 - 49];**

performing a conversion process by converting the scanned image of a

plural number of pages into image data of each of a plurality of color components for printing one page as a unit

[As shown in **Fig. 1A**, YAMADA teaches a "conversion unit" that converts the scanned image data into an image signal which corresponds to a "developing color". The electrophotographic copying apparatus contains a "plurality of developing units 101M, 101C, 101Y, 101Bk" which respectively corresponds to the developing colors magenta, cyan, yellow and black; **col. 3, lines 42 – 43.** YAMADA cites, "CCD reader 200 converts the optical information of an original image into electrical signal, and amplifies it. An image signal is subjected to the shading correction at 201, the correction for the color filter characteristics by input masking unit 202, the conversion of the light density by LOG conversion unit 203, and the correction for the toner density characteristics by output masking/UCR processor 204 to obtain an image signal V1 corresponding to a developing color"; **col. 5, lines 1 - 9];**

printing an image based on the converted image data of each of the color components

[As shown in **Fig. 2**, the electrophotographic copying apparatus contains a "printing unit" which consists of various components including a photosensitive drum, primary charger, surface potentiometer, a plurality of developing units, transfer drum, preliminary static eliminator, cleaner (**col. 3, lines 36 – 46**), laser

scanning unit and mirrors (**col. 3, lines 58 - 60**), fixing device, paper feeder and transfer paper conveying systems (**col. 3, lines 62 - 64**)**];**

However, YAMADA does not specifically teach

and executing the conversion process for a part of the color components of the scanned image of the plural number of pages, prior to the conversion process for remaining color components.

YAMADA does teach printing two sheets of paper at the same time and cites, "it is possible to retain two transfer papers such as transfer paper of A4 (210 mm long), B5 (182 mm long) or LTR (215.9 mm long) in size at the same time, as shown in FIG 14A. In such a case, if two transfer papers are assumed to be A paper and B paper, the copy speed is 9.55 sheets per minute by performing the formation for a full-color original copying image of four colors in a *sequence* of magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A) and black (B)"; **col. 4, lines 42 – 50.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to first convert scanned image data to magenta and then cyan for "paper A" and "paper B" and then to convert scanned image data to yellow and then black for "paper A" and "paper B" so that the transfer of the developing colors to the transfer drum could proceed efficiently (e.g., without "waiting" for data) according to the above-

noted sequence (magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A), black (B)).

Regarding claim 15, YAMADA further teaches the color image scanning and printing method according to claim 14, further comprising

> **printing an image based on image data of two pages for each of the color components**
>
> **[**This is illustrated in **Fig. 14A** in which image data for "paper A" and "paper B" is transferred to the transfer drum in sequence - magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A), black (B)**].**

Regarding claim 16, YAMADA *does not specifically teach* the color image scanning and printing method according to claim 15, further comprising

> **executing a conversion process for two color components of the two pages prior to a conversions process for the remaining two color components of the two pages when the plurality of color components are four colors.**

As noted for claim 1, YAMADA does teach printing two sheets of paper at the same time and cites, "it is possible to retain two transfer papers such as transfer paper of A4 (210 mm long), B5 (182 mm long) or LTR (215.9 mm long) in size at the same time, as shown in FIG 14A. In such a case, if two transfer papers are assumed to be A paper and B paper, the copy speed is 9.55 sheets per minute by performing the formation for

a full-color original copying image of four colors in a *sequence* of magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A) and black (B)"; **col. 4, lines 42 – 50.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to first convert scanned image data to magenta and then cyan for "paper A" and "paper B" and then to convert scanned image data to yellow and then black for "paper A" and "paper B" so that the transfer of the developing colors to the transfer drum could proceed efficiently (without "waiting" for data) according to the above-noted sequence (magenta (A), magenta (B), cyan (A), cyan (B), yellow (A), yellow (B), black (A), black (B)).

Regarding claim 17, YAMADA *does not specifically teach* the color image scanning and printing method according to claim 16, further comprising

> **completing a conversion process for [[the]] a preceding color components of a first page before scanning an image of a [[second]] third page.**

In the copying mode shown in **Fig. 14A** and for a copying apparatus with a minimal amount of memory for containing converted image data, it would have been obvious to one of ordinary skill in the art at the time the invention was made to start the scan of a third page (e.g., a "paper C") after the completion of a conversion process for a preceding two color components (e.g., yellow and black) of a first page (e.g., "paper A")

since the scan-print cycle is "paced" by the conversion of scanned image data and transfer of the scanned image data to the transfer drum. Once transferred to the transfer drum, the memory containing the first page data could be re-used by the third page.

8. Claims 3, 4, and 18 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **YAMADA [US Patent 5,839,039]** in view of **TAKAYANAGI [US Patent 5,040,075]**.

Regarding claim 3, YAMADA *does not specifically teach* the color image scanning and printing device according to claim 1, further comprising:

means for encoding the converted image data of each of the plurality of color components;

means for storing the image data encoded by the means for encoding;

and means for decoding the encoded image data that is stored in the means for storing;

wherein the printing unit prints an image based on the decoded result of the means for decoding.

TAKAYANAGI teaches a digital electrophotographic copying apparatus with an "image storage means". As shown in **Fig. 3**, "image storage means" **50** consists of a "data compressor" **51** (i.e., "means for encoding"), a "hard disk" **52** (i.e., "means for storing the image data"), and a "data expander" **53** (i.e., "means for decoding") which provides data to the "image printing means" **60**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YAMADA with those of TAKAYANAGI so that converted image data could be compressed (i.e., "encoded") and thereby, require less storage memory. It would have also been obvious to expand (i.e., "decode") the compressed image data and provide the decoded data to a printing unit (or "image printing means").

Regarding claim 4, YAMADA *does not specifically teach* the color image scanning and printing device according to claim 2, further comprising:

means for encoding the converted image data of each of the plurality of color components;

means for storing the image data encoded by the means for encoding;

and means for decoding the encoded image data that is stored in the means for storing;

wherein the printing unit prints an image based on the decoded result of the means for decoding.

TAKAYANAGI teaches a digital electrophotographic copying apparatus with an "image storage means". As shown in **Fig. 3**, "image storage means" **50** consists of a "data compressor" **51** (i.e., "means for encoding"), a "hard disk" **52** (i.e., "means for storing the image data"), and a "data expander" **53** (i.e., "means for decoding") which provides data to the "image printing means" **60**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YAMADA with those of TAKAYANAGI so that converted image data could be compressed (i.e., "encoded") and thereby, require less storage memory. It would have also been obvious to expand (i.e., "decode") the compressed image data and provide the decoded data to a printing unit (or "image printing means").

Regarding claim 18, YAMADA *does not specifically teach* the color image scanning and printing method according to claim 14, further comprising

encoding the converted image data of each of the plurality of color components.

TAKAYANAGI teaches a digital electrophotographic copying apparatus with an "image storage means". As shown in **Fig. 3**, "image storage means" **50** consists of a "data compressor" **51** (i.e., "means for encoding"), a "hard disk" **52** (i.e., "means for storing the image data"), and a "data expander" **53** (i.e., "means for decoding") which provides data to the "image printing means" **60**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YAMADA with those of TAKAYANAGI so that converted image data could be compressed (i.e., "encoded") and thereby, require less storage memory. It would have also been obvious to expand (i.e., "decode") the compressed image data and provide the decoded data to a printing unit (or "image printing means").

Regarding claim 19, YAMADA *does not specifically teach* the color image scanning and printing method according to claim 18, further comprising

storing the encoded image data.

Please see discussion for claim 18.

Regarding claim 20, YAMADA *does not specifically teach* the color image scanning and printing method according to claim 19, further comprising

decoding the stored encoded image data.

Please see discussion for claim 18.

9. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **YAMADA [US Patent 5,839,039]** in view of **MAEKAWA [US Patent 5,734,951]**.

Regarding claim 10, YAMADA *does not specifically teach* the color image scanning and printing device according to claim 1,

> **further comprising a display unit to display an operation state of the device.**

MAEKAWA teaches an image forming apparatus with an operation panel ("liquid crystal display" **91**) as shown in **Fig. 2**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of MAEKAWA with those of YAMADA to provide a display unit so that settings (e.g., number of copies, paper size) and status (e.g., low toner, out of paper) for making a copy could be viewed.

Regarding claim 11, YAMADA *does not specifically teach* the color image scanning and printing device according to claim 10,

> **wherein the display unit is liquid crystal display.**

MAEKAWA teaches an image forming apparatus with an operation panel ("liquid crystal display" **91**) as shown in **Fig. 2**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of MAEKAWA with those of YAMADA to provide an LCD display unit so that settings (e.g., number of copies, paper size) and status (e.g., low toner, out of paper) for making a copy could be viewed.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **YAMADA [US Patent 5,839,039]** in view of **MAEKAWA [US Patent 5,734,951]** and **TAKAYANAGI [US Patent 5,040,075]**.

Regarding claim 12, YAMADA *does not specifically teach* the color image scanning and printing device according to claim 10,

wherein the display unit is a cathode ray tube.

TAKAYANAGI teaches a digital electrophotographic copying apparatus with a user interface **90** (**Figs. 2, 3**) that has a CRT display **91**; **col. 7, lines 28 – 32.** It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TAKAYANAGI with those of YAMADA and MAEKAWA to provide a CRT display unit so that settings (e.g., number of copies, paper size) and status (e.g., low toner, out of paper) for making a copy could be viewed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter L. Cheng whose telephone number is 571-270-3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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January 7, 2008

KING Y. POON
SUPERVISORY PATENT EXAMINER